Protein engineering.

Quote by: **http://en.wikipedia.org/wiki/Protein_engineering**

Protein engineering is the process of developing useful or valuable proteins. It is a young discipline, with much research taking place into the understanding of protein folding and recognition for protein design principles.

There are two general strategies for protein engineering, 'rational' protein design and directed evolution. These techniques are not mutually exclusive; researchers will often apply both. In the future, more detailed knowledge of protein structure and function, as well as advancements in high-throughput technology, may greatly expand the capabilities of protein engineering. Eventually, even unnatural amino acids may be incorporated, thanks to a new method that allows the inclusion of novel amino acids in the genetic code.[according to whom?]

So, it is time to make proteins by engineering them, and watching them evolve.

Rational design[edit]

Main article: Protein design

In rational protein design, the scientist uses detailed knowledge of the structure and function of the protein to make desired changes. In general, this has the advantage of being inexpensive and technically easy, since site-directed mutagenesis techniques are well-developed. However, its major drawback is that detailed structural knowledge of a protein is often unavailable, and, even when it is available, it can be extremely difficult to predict the effects of various mutations.

Computational protein design algorithms seek to identify novel amino acid sequences that are low in energy when folded to the pre-specified target structure. While the sequence-conformation space that needs to be searched is large, the most challenging requirement for computational protein design is a fast, yet accurate, energy function that can distinguish optimal sequences from similar suboptimal ones.

Proteins feed your system, so are used up. engineering them therefore is a waste of time, unless you are unhealthy or something. i suggest they get them in like a vitamin supplement or something. anyways, here it is to be engineered and we should be up to the challenge.

Your typical protein is there to nourish the system. some people say if you eat a fly it is protein, but i know for a fact it is toxic and harmful, so, not all proteins are good for you, you could say. eating a lot of proteins is good for you, as with any nutritious part of foods. If you want to engineer better proteins you will probably do it in a test tube then administer them to mice. if of course it is better, then the system will flourish, you could say.

So, we need to design better proteins. what do proteins do? they feed the system. to make it better, we need to make them last longer or maybe be absorbed better? let's try to do both? to make them last longer, we need to add orbitals as that will make them 'tougher,' but the tougher they are, the more longer they will last, and the slower they will dissolve, leaving you with extra stuff in your blood. this must be bad! so, we want them to dissolve faster, this means that they need to be unstable - just dissolve a few balancing molecules from them i would say.

Now, we want them to be better, or, more nourishing. this can be done by adding

oxygen and carbon molecules to them. so we are dissolving some balance from them, to replace them with oxygen and carbon, yes?

Directed evolution[edit]

Main article: Directed evolution

In directed evolution, random mutagenesis is applied to a protein, and a selection regime is used to pick out variants that have the desired qualities.[citation needed] Further rounds of mutation and selection are then applied. This method mimics natural evolution and, in general, produces superior results to rational design. An additional technique known as DNA shuffling mixes and matches pieces of successful variants in order to produce better results. This process mimics the recombination that occurs naturally during sexual reproduction.[citation needed] The advantage of directed evolution is that it requires no prior structural knowledge of a protein, nor is it necessary to be able to predict what effect a given mutation will have.[citation needed] Indeed, the results of directed evolution experiments are often surprising in that desired changes are often caused by mutations that were not expected to have that effect. The drawback is that they require high-throughput, which is not feasible for all proteins. Large amounts of recombinant DNA must be mutated and the products screened for desired qualities. The sheer number of variants often requires expensive robotic equipment to automate the process. Furthermore, not all desired activities can be easily screened for.

To get them to mutate, we need to just produce them in a test tube and get them to divide.

Bacterial display.

Quote by: **http://en.wikipedia.org/wiki/Bacterial_display**
Bacterial display (or bacteria display or bacterial surface display) is a protein engineering technique used for in vitro protein evolution. Libraries of polypeptides displayed on the surface of bacteria can be screened using flow cytometry or iterative selection procedures (biopanning). This protein engineering technique allows us to link the function of a protein with the gene that encodes it. Bacterial display can be used to find target proteins with desired properties and can be used to make affinity ligands which are cell-specific. This system can be used in many applications including the creation of novel vaccines, the identification of enzyme substrates and finding the affinity of a ligand for its target protein.
So, we need to link the function of the protein with the gene that encodes it. this sounds a bit like protein engineering yes? well, this time we need to find the function of the protein first, being where the protein goes, as, the gene is a widearea of activities, while all proteins are proteins. some proteins may look different, as they are made out of different molecules, and, will find their way around the body depending on what they are made out of.

I think it is fair to say that the lighter the protein is, the faster it travels because the blood is pushing it. the radius will also play a part on where it goes, but not what it does. or, does it?

Is it fair to say that the heavier and wider the protein, the longer it takes to be dissolved? if that is so, then these proteins will settle faster, and, being 'bigger,' nourish the things closer to where the protein is made. this means we need to make proteins all over the place, or, divide proteins so that they can travel further, of course.

How is this done? if the protein was to divide due to cellular division - it gets too big - then this would work. this would be like taking a 100 grams of salt and 300 grams of salt and throwing it into a pool. of course, the 300 grams will dissolve

slower, as, it is covered on the inside with more salt, being the nearest thing to each grain. this is like what i was trying to explain in the previous paragraph.

Now, if the protein divides, it will travel further. this could be done by enzymes or amino acids, as they dissolve things. the more gets a little bit dissolved, the further it will travel. but, it won't travel right past the place it is supposed to be, as, it will get picked up by the right area like a puck traveling through a swathe of hockey players - something is going to hook it!

Bacterial display is often coupled with magnetic-activated cell sorting (MACS) or fluorescence-activated cell sorting (FACS) techniques. Competing methods for protein evolution in vitro are phage display, ribosome display, yeast display, and mRNA display. Bacteriophage display is the most common type of display system used [1] although bacterial display is becoming increasingly popular as technical challenges are overcome. Bacterial display combined with FACS also has the advantage that it is a real-time technique.

I don't think we need to study bacterial display that much anymore, except for a brief analysis of how it will behave over like a hundred tests or so. if we know that all proteins, unless modified, will all do the same thing, or, even if they are modified, they will divide to the same things just smaller - or even over our hundred tests we could see what happens? - this could be cleared up.

Enzyme engineering.

Quote by: **http://en.wikipedia.org/wiki/Enzyme_engineering**

Enzyme engineering is the application of modifying an enzyme's structure (and, thus, its function) or modifying the catalytic activity of isolated enzymes to produce new metabolites, to allow new (catalyzed) pathways for reactions to occur,[6] or to convert from some certain compounds into others (biotransformation). These products will be useful as chemicals, pharmaceuticals, fuel, food, or agricultural additives.

An enzyme reactor [7] consists of a vessel containing a reactional medium that is used to perform a desired conversion by enzymatic means. Enzymes used in this process are free in the solution.

When you modify the enzyme, all you change is the shape, as, it is still the same thing. if you were to make point [a] go to point [b], it will still flop out at the right places, as, it is set to do that. of course, it will not work out that well if you were to have to wait for it to get back to the way it was.

This is because the points are set up chemically to be where they are. if you were to turn a tennis ball inside out, it will flop back into place, but, if you held it that way for long enough, it will be somewhere in between. now, take the flopping back as if it were in water - not the ball, the chemicals! they will always find a way back.

Of course, you could add to it or take away from it. if you were to dissolve - which would be very hard, as enzymes are there to dissolve - the enzyme, you would have to use real killer particles to decay it! that is the only way to really cut away from it, i think.

But, if you wanted to add to it, you would have to use the same chemicals as if it were just getting 'bigger.' now, if you had a formula of 1a2b3c, you could change it i suppose to 2a2b3c, or i am sure you can imagine the rest, but they will always do the same thing. of course, if you want a real aggressive enzyme, you could just keep adding molecules to it, no?

Expanded genetic code.

Quote by: **http://en.wikipedia.org/wiki/Expanded_genetic_code**

An expanded genetic code refers to an artificially modified genetic code in which one or more specific codons have been allocated to encode an amino acid that is not among the 20 "standard" amino acids.[1]

"Standard" or "natural" amino acids are the 20 proteinogenic alpha-amino acids that in nature are the building-blocks of all proteins within humans and other eukaryotes, and that are also directly encoded by the genetic code.[2][3][4] All others are known as "non-standard", "non-canonical", or "unnatural".

In May 2014, researchers announced that they had successfully introduced two new artificial nucleotides into bacterial DNA, and by including individual artificial nucleotides in the culture media, were able to passage the bacteria 24 times; they did not create mRNA or proteins able to use the artificial nucleotides.[5][6][7][8]

This is all about amino acids. if you were to look at an amino acid, as we just discussed enzymes, you can make them bigger and maybe a little bit different. if you made it different though, what would it do? would it dissolve diseases? let's try to make an amino acid that dissolves diseases!

If we were to observe that the amino acid is native to the body, all we need to do is to cut the amino acid away from the genes or whatever and have them free floating - there is your disease fighting thing! it will dissolve all non native things, hopefully...

Now, to the discovery of having the acids circulate 24 times... how could we improve on that? well, we could make them divide, and, therefore make them last longer, if you look at it like that. if you were to make the artificial nucleotides able to be used by the acids, they would have to have more carbon or more oxygen, yes? come that, they should never have anything other than natural parts, as then they will not dissolve, and, instead will just get in the way.

So, if you want to expand the genetic code, you need to use natural things. of course, some poisons are not natural, or, are all non biomass things poison? either way they will not dissolve, unless they are gases or liquids or solids not of the metalloids and so forth.

If you want to make artificial things for the body, just stick them into a container and treat them so that they start dividing. i can see this having some use for proteins, but hell, why amino acids? maybe it would be to use the proteins quicker, like for my idea of regrowing lost limbs?

If you really want to benefit the body, you would make blood thinner! this would see the blood circulate quicker. this can be done with making the heart beat slower, or making the person calm. this means, when you are sick, you should not exercise, as, it will make your blood thicker and then there will be congestion. but, where else can we use these things?

How about if the body had stronger organs and cells? this could be done with glucose or fats of some sort that bond tot he muscles, and, as we all know, you can flex fat. this will protect the organs and cells from the things they should be protected from, maybe even cancer. but i like this idea of making organs stronger, so let's look at it a bit longer? if we were to want to repair them, and shunned surgery, we could use a 'computer with a needle' that will enter the organ or cell directly and then inject something like raw nitrogen into that part to cut away the 'rubbish?' or, more realistically, we could make the enzymes super

light, so that they will travel a great distance, and then find their mark by placing glucose int he system, as then it will build up into something the body knows it needs to break down? so, we cover all the cells and organs in glucose, then release the things that destroy glucose to shred through the organ outside too? this could work with a bit of programming...

Then, to make the organ or cell stronger again, we could make the proteins light, along with the amino acids, and inject them both into the area. well, make them super heavy then inject them right into the affected or desired area?

Housing.

Maybe they should all move far away? they need to be close to a water source and such, but they have jobs and no transport - i know they have jobs because they have cell phones, of course.

Now, why not settle a little off the road? say a hundred meters or so off the road then build their shacks there? why settle for shacks when you can have wendy houses? they could lodge a complaint for police brutality, sue the state, and then get their wendy houses, or, go to the bank, pledge their suing fees to the bank for a loan, and buy wendy houses now?

Or, the state could observe the needs of the people and allocate land close by for them. but, they need houses or something, no more shacks. i think with the state of the country, we should make housing a human right, no? let's see if this works?

Quote by: **http://www.nesri.org/programs/what-is-the-human-right-to-housing**

What is the Human Right to Housing?

Everyone has a fundamental human right to housing, which ensures access to a safe, secure, habitable, and affordable home with freedom from forced eviction. It is the government's obligation to guarantee that everyone can exercise this right to live in security, peace, and dignity. This right must be provided to all persons irrespective of income or access to economic resources. There are seven principles that are fundamental to the right to housing and are of particular relevance to the right to housing in the United States:

Security of Tenure: Residents should possess a degree of security of tenure that guarantees protection against forced evictions, harassment, and other threats, including predatory redevelopment and displacement.

Availability of Services, Materials, Facilities, and Infrastructure: Housing must provide certain facilities essential for health, security, comfort, and nutrition. For instance, residents must have access to safe drinking water, heating and lighting, washing facilities, means of food storage, and sanitation.

Affordability: Housing costs should be at such a level that the attainment and satisfaction of other basic needs are not threatened or compromised. For instance, one should not have to choose between paying rent and buying food.

Habitability/Decent and Safe Home: Housing must provide residents adequate space that protects them from cold, damp, heat, rain, wind, or other threats to health; structural hazards; and disease.

Accessibility: Housing must be accessible to all, and disadvantaged and vulnerable groups

must be accorded full access to housing resources.

Location: Housing should not be built on polluted sites, or in immediate proximity to pollution sources that threaten the right to health of residents. The physical safety of residents must be guaranteed, as well. Additionally, housing must be in a location which allows access to employment options, health-care services, schools, child-care centers, and other social facilities.

Cultural Adequacy: Housing and housing policies must guarantee the expression of cultural identity and diversity, including the preservation of cultural landmarks and institutions. Redevelopment or modernization programs must ensure that the cultural significance of housing and communities is not sacrificed.

So, either the state can give them their land back, which would be ignoring the rights of the people, or, they could buy, out of state coffers, a bit of wendy houses or prefabs for the people. if this right is not met, then the people will be short changed. if the people do not get their houses, they may destroy the area in protests if things get violent, upsetting the economy. this will cost a lot of money, so, why don't they buy them 'something nice?'

I am aware of homelessness in the whole world, and, find it against human rights. if you look at my nine point plan in my first works, there are ways to erase the deficit and come out with much money on top. this means, they are capable, yet nasty? yes, i think nasty is putting it lightly.